

Study of the loss of several electrons ... S/C56/82/043/002/001/053
B102/B104

cross sections are denoted by $\sigma_{i,i+n}$, $n=2....5$. The electron loss cross section is proportional to the electron number q_i of the outer shell, so

that $\sigma_i = (1/q_i) \sum_{s=1}^q s \sigma_{i,i+s}$ for the loss of one electron, $\sigma_i^{(2)}$

$= c_q^{-2} \sum_{s=2}^q c_s^2 \sigma_{i,i+s}$ for the loss of an electron pair, where $c_s^2 = s(s-1)/2$,

c_s^2 and c_q^2 (analogously defined) are the numbers of pairs which can be formed from s and q electrons, respectively. Formulas are also given for the loss probability and the cross-section ratios. The results suggest that the loss of an electron is independent of the existence of the others in an ion-atom collision of the medium. The mean loss probability of individual electrons is small and depends on the binding energy of the electron in the ion. Electron losses occur chiefly if the collision parameters are of the order of the electron shell dimensions. The case under consideration (ion scattering angle $\Theta \leq 0.005$ rad) corresponds to

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collision parameters $p \geq 3 \cdot 10^{-9}$ cm. The experimental values are 5-10 times higher than the cross sections calculated by Russek and Thomas (Phys. Rev. 109, 2015, 1958; 114, 1538, 1959) for these p-values on the basis of the quasimolecular electron loss mechanism. However, the experimental results are in very good agreement with the assumption of a direct interaction. Simultaneous loss of several electrons has a considerable effect on the equilibrium charge distribution when the ion beam passes through the gas, which is nearly Gaussian without multiple electron exchanges. There are 4 figures. ✓

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: November 14, 1961

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variation of the mean charge of fission ions as a function of the density of the medium. Report presented at the Second All-Union Conference on the Physics of Electronic and Atomic Collisions held in Leningrad 2-9 Oct 1962.

SOURCE: AN SSSR, Izvestiya, ser.fiz., v.27, no.8, 1963, 1078-1080

TOPIC TAGS: ion charge, electron loss, electron capture, ionization loss, N

ABSTRACT: The mean charge of uranium fission fragments, established incident to their passage through a gas, is known to increase with increasing gas density. According to N.Bohr and J.Lindhard (Kgl.danske ved.selskab.Mat.fys.medd., 28, no. 1, 1954) this is due to increase in the probability for loss of electrons from the ionization state with increase of the distance between successive ionization events. In the present work increase of the mean ion charge incident to increase in gas density was observed in experiments with 4.9 MeV ($v = 8.2 \times 10^8$ cm/sec) triply charged fission ions. The fission fragments entered a 10 cm diameter 4.5 meter long collision chamber. The particles traversing the chamber were analyzed by a magnet and detected by proportional counters. The relative numbers ϕ_i

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L 36124-65 ENT(1) IJP(c) AT

ACC NR: AP6C18803

SOURCE CODE: UR/0056/66/050/1252/1259

AUTHOR: Dmitriyev, I. S.; Nikolayev, V. S.; Teplova, Ya. A.;
Popov, B. M.; Vinogradova, L. I.

ORG: Institute of Nuclear Physics, Moscow State University (Institut
yadernoy fiziki Moskovskogo gosudarstvennogo universiteta)

TITLE: Experimental investigation of the effective cross sections
 for destruction and formation of fast negative ions in atomic collisions

SOURCE: Zh eksper i teor fiz, v. 50, no. 5, 1966, 1252-1259

TOPIC TAGS: capture cross section, negative ion, cyclotron, electron
 loss, atomic ~~collision~~ *structure*

ABSTRACT: The effective cross sections of loss of one, two, or three
 electrons in helium, nitrogen, or argon have been measured for negative
 carbon, nitrogen, and oxygen ions produced as a result of a charge
 exchange of positive ions accelerated in a 72-cm cyclotron to a velocity
 of $\gamma = 2.6 \times 10^8$ cm/sec. The cross section of simultaneous loss of two

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ACC NR: AP6018803

electrons by negative ions is $\sim 50-70\%$ of the cross section of loss of a single electron. Comparison of the results obtained with the known cross sections of electron loss by other negative or positive ions shows that the specificity of negative ions, expressed in the weak coupling of the outer electron with the ion frame, does not appreciably affect the interaction between the negative ions and the given substance at a velocity $v=2.6 \times 10^8$ cm/sec. Data on the formation cross sections of negative ions as a result of capture of two electrons by positive ions or capture of an electron by neutral atoms have been obtained for carbon and oxygen. Equilibrium values have been obtained for the fraction of negative carbon or oxygen ions in a beam passing through a sufficiently thick layer of a substance (Φ_{-1}). Maximal values of Φ_{-1} are obtained in media in which the formation cross sections of negative ions at a given velocity, attain their maxima. The authors thank the cyclotron team headed by Yu. P. Divnogortsev and A. S. Kondrat'yev, as well as Yu. Druzhinin and V. Kalit for technical support of the cyclotron and experimental equipment. Orig. art. has: 7 figures and 1 table. [Based on authors' abstract] [NT]

SUB CODE: 20/ SUBM DATE: 29Dec65/ ORIG REF: 013/ OTH REF: 004

Card 2/2 *llb*

ISSUE I BOOK EXPLANATIONS 800/3752

Metallurgy; abstract study, No. 3 (Physical Metallurgy; Collection of Articles, No. 3), Leningrad, Gostizdat, 1975. 350 p. 5,000 copies printed.

Ed.: G. I. Ruyter, Candidate of Technical Sciences; Literary and Tech. Ed.: N. I. Ruyter.

PURPOSE: This collection of articles is intended for scientific personnel at research and educational institutions and industrial plants and also for advanced students.

CONTENTS: The articles report the results of investigations of 1) the effect of various factors on the microstructure of constructional and heat-resistant steels and titanium alloys in brittle failure at various temperatures under various conditions of loading (long-time, short-time, cyclic, monotonic); 2) alloying, structure, and properties of alloys; 3) the effect of alloying on the mechanical properties, and 4) the effect of alloying on the mechanical properties of heat-resistant steels. The articles are accompanied by numerous Soviet and non-Soviet references. The personalities are mentioned.

Editor: A. S., Doctor of Technical Sciences, Professor. Review of Steel-Substitution Processes During Heating and the Effect of Alloying Elements on Steel

By: N. I. Ruyter, Candidate of Technical Sciences; N. S. Deyler, Engineer; and V. I. Ruyter, Engineer. Effect of Nickel and Copper on Thermal Brittleness of Chromium-Nickel-Manganese-Molybdenum Constructional Steel

By: L. S., Doctor of Technical Sciences; and T. E. Kizil, Engineer. Mechanism of Hydrogen Embrittlement in Steel

By: L. S., Doctor of Technical Sciences, Professor; S. E. Kizil, Engineer; V. I. Ruyter, Candidate of Chemical Sciences; and V. I. Ruyter, Engineer. Change in Mechanical Properties of Certain Steels Under the Action of Gases at High Temperatures and Pressures

By: L. S., and N. S. Deyler, Engineer. Investigation of the Mechanism of Hydrogen Embrittlement of Titanium and Its Alloys

By: L. S., Candidate of Technical Sciences. Role of Intermediate Structures in the Heat Treatment of Medium-Alloy Constructional Steel

By: L. S., Engineer. Stability of Structures and Properties of Superalloys

By: L. S., Candidate of Technical Sciences. Microscopic and Macroscopic Cracks in Quench-Tempered Steel

By: L. S., Engineer. Sensitivity of Titanium and Its Alloys to Brittle Failure Under Noncompetitive Loading

By: L. S., Candidate of Technical Sciences. Investigation of the Relationship Between Size of Specimens and Development of the First Failure Cracks in Testing Steel for Mechanical Properties

By: L. S., Doctor of Technical Sciences, Professor. Some Observations on the Strength of Metals as Related to Their Microstructure

By: L. S., Candidate of Technical Sciences. Investigation of the Initial Portions of Stress-Strain Diagram and Relaxation of Stress for Quench-Tempered Steel

TEPLOVA, Ye.D., kand.tekhn.nauk; TEPLOV, J.S. inzh.; MIRONENKO, Ye.A.,
tekhnik

Effect of nickel and copper on the temper brittleness of
structural chromium-molybdenum-vanadium steel. Metallovedenie 3:39-
50 '59. (MIRA 14:3)
(Chromium-molybdenum steel--Brittleness)

TEPLOVA, Ye. I.

USSR/General Problems of Pathology - Tumors.

T-5

Abs Jour : Ref Zhur - Biol., No 4, 1958, 17484

Author : Teplova, Ye. I.

Inst : ~~USSR Academy of Sciences~~

Title : Blood Sugar Studies in Hodgkin's Disease.

Orig Pub : Probl. gematol. i perelivaniya krovi, 1956, 1, No 4, 439-441.

Abstract : In 19 of 21 patients with Hodgkin's disease the fasting blood sugar was found to be decreased (70-80 mg%); in exacerbation, most of the patients showed progressing hypoglycemia which paralleled overall deterioration. Following a single load, the sugar curves had two peaks; none of the cases showed a return of the blood sugar to its initial level after 2 hours; the sugar curves following a double load (according to Staub-Traugott) were abnormal. Following an adrenalin injection there was

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USSR/General Problems of Pathology - Tumors.

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Abs Jour : Ref Zhur - Biol., No 4, 1958, 17484

usually a slight and belated elevation of the sugar
curve.

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~~PROZOROVSKIY, B.M.~~ 12.12.1941
PROZOROVSKIY, B.M., professor; GORELOV, I.Z.; TEPLOVA, Ye.I. (Leningrad)

Fungous diseases in the clinic treatment of internal diseases. Klin.
med. 34 no.12:41-44 D '56. (MIRA 10:2)

1. Iz pervoy terapevticheskoy kafedry (zav. - prof. B.M.Prozorovskiy)
Leningradskogo instituta usovershenstvovaniya vrachey imeni S.M.Kirova.
(FUNGUS DISEASES, case reports)

PROZOROVSKIY, B.M., prof., ~~TEPLOVA, Ye.I.~~, kand.med.nauk

Fungous complications in treatment with antibiotics. Vrach.delo
no.10:1037-1041 O '58 (MIRA 11:11)

1. Pervaya terapevticheskaya kafedra (zav. - prof. B.M. Prozorovskiy)
Leningradskogo instituta usovershenstvovaniya vrachey.
(MEDICAL MYCOLOGY)
(ANTIBIOTICS)

TEPIOVA, YE.N.

Lemmings, Un'ya Valley

Migration of forest lemmings (*Myopus schisticolor* Vinogradovi Sk. et Rajen.) to the middle course region of the Un'ya River. Zool. zhur. 31, no. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, OCTOBER 1952 ~~1953~~, Uncl.

TEPLOVA, Ye.N.; TEPOV, V.P.

Nutrition of pike in the upper Pechora Valley. Vop.ikht. no.1:94-103 '53.
(MLRA 7:6)

1. Pechoro-Ilychskiy gosudarstvennyy zapovednik.
(Pechora Valley--Pike)

TEPLOVA, Ye.N.

New zoological discoveries in the region of the Pechora-Ilych State Preserve.
Zool.shur. 32 no.5:1027 S-O '53. (MLRA 6:10)

1. Pechoro-Ilychskiy gosudarstvennogo zapovednik.
(Pechora-Ilych State Preserve)

TEPLOVA, Ye.N.

Birds in the region of the Pechoro-Ilych Preserve. Trudy Pech.-11
gos. zap. no.6:5-115 '57. (MIRA 11:7)
(Pechoro-Ilych Preserve--Birds)

TEPLOVA, Ye. N.

Amphibians and reptiles of the Pechoro-Ilych preserve. Trudy Pech.-
Il gos. zap. no. 6:116-129 '57. (MIRA 11:7)
(Pechoro-Ilych Preserve--Amphibia)
(Pechoro-Ilych Preserve--Reptiles)

TEPIOVA, Ye. I.

Feeding habits of cultivated and wild carp reared in the Kuban
limans. Trudy Izv. IIRKH no. (1163-177 '63. (MIRA 17:8)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.; BALABANOV, G.P.; TEPLOVA, Z.G.

Infrared and ultraviolet spectra of some derivatives of terephthalic acid. Zhur.ob.khim. 33 no.10:3249-3252 0 '63.
(MIRA 16:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

GOL'DBERG, N.A.; GORBUSHENKOV, V.A.; TEPLOVA, Z.G.

Some physical properties of *m*-chlorophenylisocyanate. Zhur.
prikl. khim. 37 no. 4:745-747 Ap '64. (MIRA 17:5)

2/187/39/000/04/030/030
8051/2415

AUTHOR: Zolotarev, V.I.

TITLE: The Scientific-Technical Conference at Khar'kov
Aviation Institute

PERIODICAL: Ivestiye vysshikh uchebnykh zavedeniy, Aviatsionnaya
tekhnika, 1959, No. 8, pp 161-163 (USSR)

ABSTRACT: In May 1959, the 16th Conference of Professors and
Teaching Staff took place.

Card 8/11 The Technology of Aircraft Construction and Metal Working
Section. "A New Method of the Plasticity of Metals" by
Instructor. Candidate of Technical Sciences, I.A. Alchazarov.

"On the Problem of Constructing Second-Order Curves in
Components from Sheet Metals" by Assistant A.P. Barukov.

"On the Problem of Constructing Second-Order Curves in
Aircraft Construction" by Senior Instructor
M.A. Kargin.

"The Effect of Contact Welding of Thin
Pieces of Metal" by Assistant N.M. Teresov. "The Influence
of Plastic Deformation on the Properties of Austenitic
Stainless Steel at Various Temperatures" by Assistant
A.V. Filizov.

"The Deformation of Non-Ferrous Metals
at Low Temperatures" by Assistant
M.M. Kargin.

"The Investigation of Phase Changes in
Metals" by Assistant A.M. Chukhlov. "The Influence
of Temperature and Velocity of Deformation on the
Phase Changes of Austenitic Steels" by Candidate of
Technical Sciences A.M. Chukhlov and Fellow V.P. Martynov.

"The Determination of Optimum Technical Grouping in the
Design and Production of Aircraft" by Assistant
I.A. Boborykin.

"On the Use of Explosives in the
Technology of Drop Focking" by Assistant K.I. Zaitsev.

"Welding by Friction" by Assistant E.P. Ostrovsky.
Structure of Aircraft Section.

"On the Problem of Protecting
from Aerodynamic Heating" by Decent P.V. Bobakiv.

"Passive Methods of Protection from Aerodynamic Heating"
by Candidate of Technical Sciences P.G. Zaitsev.

"The Influence of the Parameters of a Thermally Isolated
Package on Heat Transfer Characteristics" by Assistant
A.G. Bobakiv.

"On the Problem of Protecting
from Aerodynamic Heating" by Decent P.V. Bobakiv.

"The Approximate Calculation
of the Weight Taking into Account the Technical Features
of the Aircraft Structure" by Candidate of Technical
Sciences L.D. Arson.

"The Determination of Stresses in
a Shell as a Result of Riveting" by Assistant
I.A. G. Fomenko.

"The Ultrasonic Altimeter (Sounding Device)"
The Scientific-Technical Conference at Khar'kov Aviation Institute

and "The Radio-Control and Autopilot of an Experimental
Model" by Engineer I.P. Tsypl.

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Card 10/11

TEPLTAKOV, I.N., kand.tekhn.nauk

A useful book ("Economics of water management" by D.T.Zuzik.
Reviewed by I.N.Tepliakov). Gidr.stroi. 31 no.3:63-64 M. '61.
(MIRA 14:4)

1. Zaveduyushchiy otdelom ekonomiki vodnogo khozyaystva
Kazakhskogo nauchno-issledovatel'skogo instituta vodnogo
khozyaystva.

(Hydraulic engineering)
(Zuzik, D.T.)

TEPLY, B.

Albert Struma's Vodni pogoni na Slovenskem: gradivo za zgodovino (Water-Power Installations in Slovenia; Material for a History); a book review. p.292.
(Slovenski Etnograf. Vol. 9, 1956, Yugoslavia)

SO: Monthly List of East European Accessions (EEAL) ^C19, Vol. 6, no. 7, July 1957, Uncl.

TEPLY, B.

The development of railroad workshops.

P. 192 (Železniční Technika) Vol. 5, No. 7, July 1957, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958

TEP 7, Ermin, prof. dr ing.

Determination of the economic limit of open pit mining in relation
to the underground method. 1911 met. 7607 3:28.42 '64.

. Faculty of Technology, Zagreb.

"APPROVED FOR RELEASE: 07/16/2001

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755320001-7"

TEPLY, J.: BEDNAR, J.

Contribution to Z. Spurny's article "Radiation Chemistry."

1776 (Chemicke listy) Vol 51, no. 9 Sept. 1957. Praha, Czechoslovakia.

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 1, Jan 1958

TEPLÝ, J.

Simple chemical dosimeter. J. Teplý and Jaroslav Bednář (Ant. Zápotočský Military Techn. Acad., Brno, Czech.). *Jaderná energie* 4, 202-5(1958).—Satd. soln. of CHCl_3 in H_2O is proposed as a chem. dosimeter. The radiolysis product, HCl , is detd. by titration with 0.001N NaOH , or conductometrically. The soln. is stable and easily prepd. It has been calibrated for γ -rays from Co^{60} , β from $\text{Sr}^{90} + \text{Y}^{90}$, and x-rays (150 kv. peak). The yield is independent of the radiation intensity within a wide range, and does not vary much with the nature of the radiation. The dosimeter can be used from 1000 to 40,000 r. H-N-.

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CZECHOSLOVAKIA/Physical Chemistry - Radiation Chemistry.
Photochemistry. Theory of the Photographic Process. B

Abs Jour : Ref Zhur Khimiya, No 19, 1959, 67330

Author : Teply, Jiri; Bednar, Jaroslav

Inst : -

Title : Radiation Chemistry of an Aqueous Solution of Chloroform.

Orig Pub : Jaderna energie, 1958, 4, No 12, 389-390

Abstract : An aqueous solution of CHCl_3 (7×10^{-3} M) was irradiated with unfiltered x-rays, γ -rays of Co^{60} and β -rays of Si^{90} / Y^{90} . The main reaction product was HCl. The end of the induction period the radiation chemical yield of HCl attained 26.6 ± 1.3 on x-ray irradiation, 25.8 ± 1.3 on γ -ray irradiation, and 24.4 ± 1.3 on β -ray irradiation. 3.9-4.7 molecules of HCl were given off per O_2 molecule consumed. The induction period depends on the reaction between the OH and CHCl_3 radicals ($\text{OH} + \text{CHCl}_3 = \text{H}_2\text{O} + \text{CCl}_3$). The HCl concentration is related

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CZECHOSLOVAKIA/Physical Chemistry - Radiation Chemistry.
Photochemistry. Theory of the Photographic Process.

B

Abs Jour : Ref Zhur Khimiya, No 19, 1959, 67330

to the irradiation time t , the irradiation intensity I ,
and the CHCl_2 concentration by the equation $\left[\frac{\text{HCl}}{\text{CHCl}_2} \right] = kIt - kI \sqrt{1 - \exp(-k_1/\text{CHCl}_3/t)} \sqrt{k_1/\text{CHCl}_3}$, where k
and k_1 are constants. In 0.8 N H_2SO_4 , Fe^{2+} ions were
oxidized to Fe^{3+} in the presence of excess O_2 and excess
 CCl_3O_2 radical which is formed from the CCl_3 radical in
the presence of O_2 and is converted to CCl_3OH . -- T. Levi

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COUNTRY	: Czechoslovakia	B-10
CATEGORY	: Physical Chemistry--Radiation chemistry. Photo-chemistry. Theory of photographic process.	77869
ABS. JOUR.	: RZKhim., No. 22 1959, No.	
AUTHOR	: Bednar, J. and Teply, J.	
INST.	: Not given	
TITLE	: The Yield of Hydrogen Peroxide in Water Irradiated with X-rays	
ORIG. PUB.	: Chem Listy, 52, no 6, 1023-1034 (1958); Collection Czechoslov Chem Commun, 24, No 1, 127-134 (1959)	
ABSTRACT	: The authors have investigated the effect of x-rays (150 kev) on water and on aqueous KBr solutions (10^{-6} - 10^{-2} M), saturated with oxygen and free of CO_2 , both in acid medium and in neutral medium. The value of $G(\text{H}_2\text{O}_2)$ after irradiation with x-rays is greater than after irradiation with $\text{Co } 60$ gamma rays. $G(\text{H}_2\text{O}_2)$ decreases linearly with increasing $[\text{KBr}]$; the decreases is the more rapid, the higher the pH. The $G(\text{H}_2\text{O}_2)$ in neutral medium is higher than in acid medium. In water,	
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TEPLY, J.; ZILVAR, V.; SINORDA, J.

Equipment for investigating technological radiation processes applied in working up plastics and India rubber. p. 151

JADERNA ENERGIE. (Ministerstvo energetiky) Praha, Czechoslovakia, Vol. 5, No. 5 May 1959

Monthly List of East European Accessions (EEAI), LV, Vol. 6, No. 7, July 1959
Uncl.

AUTHOR: Jiří Teplý

CZECH/8-59-9-1/14

TITLE: Physico-Chemical Bases of Radiation Chemistry

PERIODICAL: Chemické Listy, 1959, Nr 9, pp 897-908

ABSTRACT: After a short introduction in which the reviewer draws attention to a number of monographs and reports, mostly in other languages (Refs 2-5) with a few in Czech (Refs 1 and 7) he goes on to consider the following topics: Properties of ionising radiation. This section deals briefly with the character of the radiation, photoeffect (Ref 2), Compton scattering (Ref 3), the formation of electron pairs (Ref 8), the ion density of traces, specific ionisation (cf Ref 9) and hot points, as well as linear energy transfer, roentgen equivalent physical, rad, absorption energy velocity, and dose rate (cf Refs 10,11,12). (Legend Fig 1. The Compton and photoelectric effect as a fraction of the absorption energy of X-ray irradiation in water at different energies (after Bacq and Alexander, Ref 3). Abscissa; effective radiation energy: ordinate; % Compton effect; 1, Compton electrons as a fraction of total number of secondary electrons; 2, energy of Compton electrons as a

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Physico-Chemical Bases of Radiation Chemistry

fraction of total energy absorbed. (The difference between curve values and 100% is due to photoelectrons. Pair formation does not occur in this range of energy). Intermediate products and their reactions. The following are considered: electrons, positive ions, negative ions, "pressure mass spectrometry", activated molecules, sponge type protection (Ref 16), luminescence and free radicals (Ref 17), and steric factors in reactions (Ref 18). (Other section Refs 13, 14, 15). Table 1 gives the absorption energies corresponding to atmospheric dose of 1 r. (after Haissinky (Ref 4)). Table 2 shows factors for the conversion of energy units. Table 3 shows yields of $G(\text{Fe}^{3+})$ ferrosulphate dosimetry for certain radiations. Velocity of reactions in radiation chemistry. The velocity of a radiochemical reaction is given by the amount of substance changed or formed in relation to the dose or energy absorbed (i.e. the radiochemical yield). Eq (1) gives the absorbed dose (in rads) which corresponds to an aerial dose of 1 r. (Ref 19). The measurement of absorbed doses is usually carried by chemical dosimetry (cf Refs 20, 21), a relative method;

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Physico-Chemical Bases of Radiation Chemistry

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absolute methods also exist (Ref 4a). Spatial separation of the reacting particles has a marked influence on the kinetics of radiochemical processes. Intensity of radiation also has an effect (cf Ref 22). The rotating sector (or interrupted illumination, Ref 23) method of photochemistry is applicable, in some cases, for the measurement of the average reaction half-life (i.e. Refs 24, 25, 26). Direct and indirect effects of radiation. Eqs (2) and (3) are simplified reaction schemes for indirect effects, which, assuming water and C (starting substance) concentration are unchanged, can be represented by Eqs (4) and (5); these integrate to Eqs (6) and (7), after introduction of initial conditions. End product D rises initially in an exponential fashion according to Eq (7), then linearly. R, the intermediate product, is thus constant. The achievement of the stationary state is characteristic of the systems considered, as for chain reactions. The period for stationary state establishment is known as the induction period and is generally characteristic for indirect effects (Ref 27). At higher

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concentrations of the dissolved substance higher reaction yields are achieved (Ref 28). Dissolved molecular oxygen has a special role.

Research methods. The main methods for research in radiochemistry are considered to be chemical. Sensitive analytical methods are required for the main radiolysis products resulting and for the measurement of the dependence of their concentration on the energy absorbed. This dependence determines the radiochemical yield. The true value of the yield is the initial yield, i.e. the extrapolated yield for lowest dose. Other information is obtained from the relationship of yield to concentration of the substance being examined, intensity and type of radiation as well as thermal dependence of radiation yield, gaseous and liquid phase yields, effect of added substances (cf Refs 29,30,31,37), the use of isotopes, comparisons with photochemistry (Refs 32, 33), mass spectra (cf Refs 17, 34, 35) and the use of electron paramagnetic resonance (Ref 36).

Methods of radiation. The following types are reviewed: external radiation, internal radiation with auto-radiolysis as a special type. The purification and ✓

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Physico-Chemical Bases of Radiation Chemistry CZECH/8-59-9-1/14

purity of compounds used is also considered (cf Ref 38).
Conclusions. The reviewer considers that the stage has
been reached where observations are being coordinated and
that the methods of radiochemistry will yield important
information on, for example, kinetics, molecular
chemistry and utilisation of radioactive masses.
There are 1 figure, 3 tables and 44 references, of which
1 is Soviet, 2 are French, 10 are Czech and 31 are in
English. ✓

ASSOCIATION: Ústav jaderné fyziky ČSAV, Praha
Card 5/5 (Institute of Nuclear Physics, Czechoslovak Academy
of Sciences, Prague)

TEPLY, J.; BEDNAR, J.

"Yields of hydrogen-peroxide formation in water irradiated by X rays." In German. p. 127

COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS, PRAHA, CZECH.,
Vol. 24, No. 1, Jan 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 6, Sept. 59.
Unclassified

TEPLY J.

CZK
YI

✓ Radiation chemistry of aqueous solutions of organic halogen derivatives. I. Radiolysis of an aqueous solution of chloroform. J. Teplý (Ústav jaderné fyziky ČSAV, Prague). *Collection Czechoslov. Chem. Commun.* 24, 1033-42 (1959).—The dependencies of the radiation yield of HCl on the rate of energy absorption, on the CHCl_3 concn., and on the temp. were studied. The effect of the dissolved O_2 and the kinetics of the induction period are discussed.
E. Erdős

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AUTHORS:

Teplý, Jiří and Seidl, Karel

CZ/38-60-1-3/24

TITLE:

Organic Moderators and Coolants

PERIODICAL:

Jaderná Energie, 1960, No. 1, pp. 6 - 8

TEXT:

The author discusses the problems arising from the utilization of organic moderator coolants for nuclear reactors and analyses some criteria for the choice of organic materials. He concentrates on polyphenyl which he considers best suited for this purpose. Next, he deals with property changes of several compounds caused by radiation and heating. Detailed descriptions are given of the Organic Moderated Reactor Experiment (OMRE-Idaho) and the Canadian heavy-water moderated power reactor using an organic coolant. There are 4 diagrams, 1 table and 8 references, 1 of which is Soviet, 6 American and 1 French.

ASSOCIATION:

Ústav jaderného výzkumu ČSAV, Praha (Nuclear Research Institute
ČSAV, Prague)

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Distr: 4E20(j)/4E3d

✓ Radiation chemistry of aqueous solutions of organic halide derivatives. III. Reactions caused by the radiation or by the hydrogen peroxide in solution of chloroform and ferrous ions. J. Bednár and J. Teplý (Vojenská akad. A. Zápotockého, Brno, Czech.). Collection Czechoslov. Chem. Commun. 25, 842-52(1960); cf. CA 54, 18131g. The existence was confirmed of CCl_2O_2 radicals which were formed during the radiolysis of aq. CHCl_3 solns. in the presence of O_2 . These radicals, having a peroxide character, cause an increase of the oxidn. of the Fe(II) ions during the radiation or by the H_2O_2 . The reaction of the OH radicals with the CHCl_3 also was confirmed. IV. The effect of the bromide and thallium ions on the radiolysis of chloroform and carbon tetrachloride solutions. J. Bednár. Ibid. 25, 934-7(1960).—The Br^- causes a decrease in the amt. of the halide deriv. decompd. Tl^+ has no effect on the yield of HCl in the CCl_4 solns. and causes a decrease of the yield in the CHCl_3 solns. E. Bednár

5
1-BW(BW)
1-JAJ(VB)
1-JAJ(MAY)
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TEPLY, J.

Radiation chemistry of aqueous solutions of organic halogen derivatives. II. Mechanism of radiolysis of an aqueous chloroform solution. Coll Cz Chem 25 no.1:24-30 Ja '60. (EEAI 9:12)

1. Jetzige Adresse: Institut für Kernforschung, Tschechoslowakische Akademie der Wissenschaften, Prag.
(Halogens) (Organic compounds) (Radiation)
(Chloroform) (Water) (Solutions)

BEDNAR, J.; TEPLY, J.

Radiation chemistry of aqueous solutions of organic halogen derivatives.
III. Reactions caused by radiation of hydrogen peroxide in solutions
of chloroform and iron(II)-ions. Coll Cz chem 25 no.3:842-852 Mr '60.
(EEAI 9:12)

1. Militarische Akademie "A.Zapotocky" Brno (for Bednar). 2.
Jetzige Adresse: Institut fur Kernphysic, Tschechoslowakische Akademie
der Wissenschaften (for Teply)
(Halogens) (Organic compounds) (Radiation)
(Hydrogen peroxide) (Chloroform) (Iron)
(Ions) (Water) (Ions)

21.4000

28452

Z/038/61/000/010/005/008
D291/D301

AUTHORS: Teplý, Jiří, and Kačena, Vladimír

TITLE: Research in radiation and hot-atom chemistry

PERIODICAL: Jaderná energie, no. 10, 1961, 348-351

TEXT: The article outlines general tasks of radiation and hot-atom chemistry, describes the research performed in this field by the Ústav jaderného výzkumu ČSAV (Nuclear Research Institute, Czechoslovak AS) and lists the irradiation equipment at its disposal. In the field of radiation chemistry, the Institute studies primary processes taking place in the radiolysis of simple compounds, evaluates the radiation stability of various materials, and investigates possibilities of chemical dosimetry. The mechanism of radiolytic processes is studied especially in view of free radicals which form active intermediate products. In these studies, the following methods are used: kinetic studies of radiolysis of organic substances with dissolved radical interceptors (FeCl₃, diphenylpicryl hydrazil, etc.); a new method to study

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Research in radiation ...

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free radicals, originating by irradiation of substances in frozen state, from the spectra of electron-paramagnetic resonance; a method prepared for investigating elementary processes in gaseous phase by means of mass spectrometry. Subjects of individual papers are: The radiation chemistry of watery chloroform solutions (the paper confirms the reaction mechanism, gives a kinetic explanation of the induction period and investigates the influence of other solutions); The radiation chemistry of bi- and tri-valent Fe-solutions (the paper investigates the competing influence of α , α -dipyridyl, bromidic and thallic ions on the radiation redox reaction); The radiolysis of tetrachloromethane (the paper investigates the suitability of this agent as a dosimetric system in mixtures with ethanol and resazurin); The mechanism and kinetics of the oxidation of watery cystine solutions, Investigations of the radiation-chemical stability of extraction materials and organic coolants primarily employ gas chromatography. Experiments on chemical dosimetry are made with the above-mentioned tetrachloromethane system and some inorganic crystals such as Mn, Mg and Sm activated CaSO_4 . Apparatus at disposal for radiation-chemistry

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Research in radiation ...

mical experiments are: a 1 Mev van de Graaff accelerator; a radiation source of approximately 250 curie Co-60 with an intensity of $2 \cdot 10^3$ r/min in the direct vicinity of the radiator, and 75 r/min in a distance of 30 cm; a radiation source of 5 curies Co-60 with a maximum intensity of 50 r/min; some Ra, Co-60 and Cs-137 sources for dosimetric purposes with activities ranging from several milligram-equivalents Ra to several tens of gram-equivalent Ra; and x-ray sources with a maximum of 60 and 250 kv. Additional x-ray sources for 90 and 200 kv, both with a maximum flux of 200 mA, are under construction, and radiation sources of 1,000, 2,000 and 20,000 curies Co-60 are planned to be installed in 1962/63. The Institute is also equipped with a gas chromatograph with thermally conducting cells and a spectrograph for electron paramagnetic resonance. The spectrograph operates on the 3.20-cm wave with a modulation of 100 kc/sec, and has a sensitivity of the order of 10^{15} spins. Research in the field of hot atoms can be divided into the following three groups:
(1) Early studies of the chemical states of As-76 (the distribution of As-76 between oxidation stages As^{III} and As^V was studied

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Research in radiation ...

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D291/D301

on Na-cacodylate, As_2O_3 and Na_2HAsO_4); (2) Studies performed and published by members of the Institute during their visit to the USSR: These studies dealt primarily with the Szilard-Chalmers reaction and resulted in the development of a so-called "dynamic" separation method for highly-active isotopes, where the irradiated solution is circulated and continuously processed to eliminate a decrease of specific activity which is otherwise caused by transfer reactions. Two studies, conducted in Moscow under the supervision of Professor A.N. Nesmeyanov, dealt with the S-32 (n, p) P-32 reaction in the hydrogen sulfide - benzene system, and with B-80 and B-82 reactions; (3) In 1960, initial studies were undertaken with the experimental reactor, investigating the behavior of atoms after (n, γ) and after (n, p) reactions. These studies were also the subjects of dissertations prepared at the Nuclear Research Institute by 4 students of the CVUT (Czech Institute of Technology). In the studies of (n, γ) reactions, the behavior of analog systems, containing P or As is compared, and the activity distribution in inorganic and organic compounds is

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Research in radiation ...

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Z/038/61/000/010/005/008
D291/D301

investigated. So far, a paper has been published on the behavior of As-76 in the AsCl₃-benzene system. In the studies of (n, p) reactions, the Cl-35, S-35 reaction was used to investigate the distribution of S-35 atoms in various compounds which can originate at the irradiation of chlorobenzene-benzene, eventually chlorohexane - hexane solutions. The two reactions show quite different mechanisms: while another isotope of the same element originates in (n, γ) reactions, the atom converts into a different element in (n, p) reactions. There are 17 Soviet-bloc references.

ASSOCIATION: Ústav jaderného výzkumu ČSAV (Nuclear Research Institute, Czechoslovak AS)

X

Card 5/5

SPURNY, Z.; TEPLY, J.

Second national conference on radiation chemistry in Prague.
Jaderna energie 8 no.2:71 F '62

TEPLY, J.,

Heavy duty vibration screens for ceramic slurries. Stavivo
40 no.12:414-418 D '62.

1. Prerovské strojířny, n.p. Vyzkumny ustav stavebních a
keramických stroju, Brno.

TEPLY, Jiri; JANOVSky, Igor

Effect of radiation on the extractive process and extraction agents. Jaderna energie 10 no. 2:40-46 F '64.

1. Ustav jaderného výzkumu, Československá akademie věd, Rez.

TEPLY, Jiri

Vibration machines at the Leipzig Fair 1962. Inz
stavby 10 no.4: Suppl. 45-47. Ap '62.

1. Vyzkumny ustav stavebnich a keramickych stroju, Brno.

TEPLY, Jiri

The PVM 600 high-frequency immersion vibrator. Inz stavby
11 no.4: Supplement: Mechanizace no.4: 54-58 '63.

1. Vyzkumny ustav stavebnich a deramickych stroju, Brno.

TEPLY, J.; STULIK, V.; TEICHMANOVA, M.; MORAVEC, J.

Radiation chemical formation of uranium peroxide in ketone solutions of uranyl nitrate. Coll Cz Chem 30 no.1:1-9 Ja '65.

1. Institute of Nuclear Research of the Czechoslovak Academy of Sciences, Rez near Prague (for Tepy, Teichmanova and Moravec).
2. Department of Technical and Nuclear Physics of the Czech Institute of Technology, Prague (for Stulik). Submitted February 19, 1963.

TEPLY, J.; HABERSBERGEROVA, A.

Effects of some solutes on the radiolysis of methanol. Coll
Cz Chem 30 no.3:785-792 Mr '65.

1. Institute of Nuclear Research of the Czechoslovak Academy
of Sciences, Rez near Prague. Submitted July 17, 1963.

TEPLY, J.; HABERSBERGEROVA, A.; VACEK, K.

Radiolysis of pure methanol. Coll Cz Chem 30 no.3:793-801
Mr '65.

1. Institute of Nuclear Research of the Czechoslovak Academy of
Sciences, Rez near Prague. Submitted April 28, 1963.

TEPLY, J.

's account of the 5th Czechoslovak Seminar on Radiation
Chemistry. Chem listy 59 no.6:764 Je '65.

DANEK, Vaclav, inz.; TEPLY, Karel, inz.

Results of the experimental operation of program controlled
knee-type milling machines in the Tovarny na obrabeci stroje
Kurim National Enterprise. Stroj vyr 11 no.5:222-232 My '63.

1. Tovarny na obrabeci stroje Kurim, n.p. Kurim.

Czechoslovakia/Chemical Technology. Chemical Products and Their Application --
Food industry, I-28

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6696

Author: Teplý, Milos

Institution: None

Title: Problems of the Production and Use of Pure Cultures of Lactic Acid
Bacteria

Original

Publication: Prumysl potravin, 1955, 6, No 12, 594-601

Abstract: Description of the development of production of lactic acid cultures (LC) in Czechoslovakia. Discussed are the problems of setting up and construction of establishments for the production of LC and of their inclusion in the framework of the dairy industry or of that of the scientific research institutes. Shortcomings in work with LC, at dairy plants, are pointed out. Basic information is given concerning the investigation, propagation and control of LC, and also on problems involved in further investigations of LC.

Card 1/1

TEPLY MILOS

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their Application. Food Industry. I-13

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2991

Author : Teply Milos

Inst :

Title : Technical Development of the Production of Rennet and Other Auxiliary Agents for the Dairy Industry.

Orig Pub : Prumysl potravín, 1956, 7, No 12, 545-549

Abstract : No abstract.

Card 1/1

CZECHOSLOVAKIA / Chemical Technology. Food Industry. H-28

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 79467.

Author : Teplý, M.

Inst : Not given.

Title : Analysis on the Quality of Pure Lactic Acid Bacteria.

Orig Pub: Prumysl potravin, 1957, 8, No 9, 465-470.

Abstract: Results are presented concerning the quality control, at inter-plant and industrial laboratories, of pure cultures of the lactic acid bacteria brand "Lactoflora" produced in Czechoslovakia. Measures are presented as to the improvements in the quality of pure cultures.

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TEPLY, M

CZECHOSLOVAKIA/Chemical Technology - Food Industry.

H.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755320001-7"

Abs Jour : Ref Zhur - Khimiya, No 16, 1958, 55652

Author : Gladikova, Mashek, Teplý

Inst : -

Title : A New Czechoslovakian Thermophilic Culture for the Preparation of Cheese.

Orig Pub : Prumysl potravin, 1957, 8, No 10, 522-524

Abstract : A Method is described for the preparation of thermophilic culture of lactic acid bacteria from native (Czechoslovakia) milk, which culture is suitable for the production of Cheddar and Swiss cheese.

Card 1/1

86

TEPLY, M.; MAXA, V.; HYL'AR, B.

New technique of microbiological control in the food industry. p. 408

PRUMYSL POTRAVIN. (Ministerstvo potravinarskeho prumslu) Praha,
Czechoslovakia, Vol. 10, no. 8, Aug. 1959

Monthly List of East European Accessions (EEAI), LC. Vol. 9, no. 2,
Feb. 1960

Uncl.

POPLY, E; HANA, V.

Ten years from the introduction of Lactoflora pure fermenting cultures for
dairies. p. 512

PRŮMYSL POTRAVIN. (Ministerstvo potravinářského průmyslu)
Praha, Czechoslovakia Vol. 10, no. 10, Oct. 1959

Monthly List of East European accession, (BEAI), LC, Vol. 8, No. 12, Dec. 1956
Uncl.

TEPLY, Milos, inz., dr.

Effect of the nisine on pure cultures of lactic fermentation
bacteria. Prum potravin 13 no.4:198-200 Ap '62.

1. Sdruzeni mlekaren, Vyroba cistych mlekarskych kultur, Praha.

HYLMAR, Bohumil, inz.; TEPLY, Milos, inz., dr.

A new simplified method for controlling the gentle milk
pasteurization. Prum potravin 13 no.4:205-206 Ap '62.

1. Sdruzeni mlekaren, Vyroba cistych mlekarskych kultur, Praha.

TEPLY, Milos, inz., dr.

Determining the antibiotic nisine by diffusion method in using
Lactobacilli. Prum potravin 13 no.5:270-273 My '62.

1. Sdruzeni mlekaren, Vyroba cistych mlekarskych kultur, Praha.

*

TEPLY, Milos, inz., dr.

Problem of using antibiotics in food industries. Prua potravin 14
no.4:175-177 Ap '63.

1. Sdruzeni mlekaren, Vyroba cistych mlekarskych kultur, Praha -
Vokovice.

MAXA, Veroslav, inz. dr.; TEPLY, Milos, inz. dr.

Nisin production by some strains of Streptococcus lactis. Prum
potravin 15 no.3:142-145 Mr '64.

1. Mykoprodukta, Prague (for Maxa).
2. Association of Dairies, plant of Pure Lactic Cultures, Prague
(for Teply).

MAXA, Veroslav, dr.; TEPLY, Milos, ins. dr.

Production of Nislaktin, a new milk-based nisin concentrate. Prin
potravin 15 no.8:417-421 Ag '64.

1. Mykoprodukta, Prague (for Maxa). 2. Association of Dairies,
Preparation of Pure Dairy Cultures, Prague (for Tepy).

HEJZLAR, Miroslav, MUDr.; HYLMAR, Bohumil, inz.; TEPLY, Milos, inz. dr.

Improvement of microbiological control in the food industry.
Prum potravin 15 no.9:444-447 S '64.

1. Military Institute of Hygiene, Epidemiology and
Microbiology, Prague, (for Hejzlar). 2. Sdruzeni mlekaren,
Production of Pure Lactic Acid Cultures, Prague (for
Hylmar and Tepy).

MAXA, Veroslav, inz. dr.; TEPLY, Milos, inz. dr.

Use of nisin for the suppression of butyric fermentation
in melted cheese. Prum potraviny 15 no.9:469-474 S '64.

1. Mykoprodukta, Prague (for Maxa). 2. Sdruzeni mlekaren,
Production of Pure Lactic Acid Cultures. Prague (for Teply).

MAXA, Veroslav, inz. dr.; TEPLY, Milos, inz. dr.

Use of nisin for the control of butyric fermentation clostridia
in hard cheese production. Prum potravin 16 no.4:206-208 Ap '65.

1. Mykoprodukta, Prague (for Maxa). 2. Association of Dairies,
Production of Pure Dairy Cultures, Prague (for Teplý). Submitted
December 12, 1964.

TEPLY, R.

Transplantation of the peritoneum; preliminary communication.
Bratisl. lek. listy 31 no. 9-10:855-861 1951. (CLML 22:2)

1. Of the First Surgical Clinic of Charles University, Prague.

TEPLY, Richard, Primar MUDr.

Gunshot fractures during the peace time. Cas. lek. cesk.
91 no.27:795-797 4 July 52.

1. Z I. chirurg. kliniky v Bratislave. Prednosta: prof. dr.
Konst. Carsky.

(FRACTURES,
gunshot)

(WOUNDS AND INJURIES,
gunshot, with fract.)

TEPLY, R.

Function therapy (rehabilitation) in injuries. Lek. obzor. 2 no. 6-7:
411-417; contd. June-July 1953. (CJML 25:4)

1. Of the First Surgical Clinic (Head--Prof. K. Carsky, M.D.) of
KUNZ, Bratislava.

TEPLY, R.

Exercise therapy. Lek. obzor 2 no.8:482-490; contd. Aug 1953.

(CJML 25:4)

1. Of the First Surgical Clinic (Head--Prof. K. Oarsky, M.D.) of
KUNZ, Bratislava.

TEPLY, Richard (KUNZ Bratislava, Mickiewiczova ul. 13)

Functional therapy of injuries. Lek. obzor 3 no.1-2:38-45 1954.

1. Z I. chirurgickej kliniky KUNZ v Bratislave.
(WOUNDS AND INJURIES, therapy,
*phys. ther.)
(PHYSICAL THERAPY, in various diseases,
*wds. & inj.)

"APPROVED FOR RELEASE: 07/16/2001

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755320001-7"

TEPLY, V.

POLAK, H.; TEPLY, V.; MAZANEK, M.

Effect of the central nervous system on glycolytic action of histamine. Sbor. lek. 56 no.5-6:117-125 June 54.

1. Z klinicko-fysiologicke laboratore III. interni kliniky KU v Praze, prednosta prof. MUDr J.Charvat.

(HISTAMINE, effects,

on glycogen metab. in denervated organs)

(GLYCOGEN, metabolism,

eff. of histamine in denervated organs)

(CENTRAL NERVOUS SYSTEM, physiology,

regulation of glycogen metab. after admin. of histamine)

TEPLYAKOV, A., inzh.

Automatic stoker. HT0 2 no.6:41 Je '60.
(Boilers, Marine)

(MIRA 14:2)

(Automatic control)

TEPLYAKOV, A.; POSYSAYEV, N.; TAYMANOV, E.

Soviet engineering news. NTO 2 no.12:58-59 D '60.
(Technological innovations)

(MIRA 14:3)

TEPLYAKOV, A.

Structure of sowing acreages. Prof.-tekh. obr. 19
no.7:18 JI '62. (MIRA 15:12)

1. Direktor Argayashskogo uchilishcha mekhanizatsii sel'skogo
khozyaystva No.1, Chelyabinskaya oblast'.
(Farm mechanization—Study and teaching)

TEPLYAKOV, A., mekhanik-nastavnik

Universal portable machine for lapping internal combustion engine valves on ships. Rech. transp. 22 no.11:49 N '63. (MIRA 16:12)

1. TSentral'nyy dom tekhniki Ministerstva rechnogo flota.

TEPI 7000, 11.

Branches of the Central House of Technology of the Ministry of
the River Fleet. Rech. transp. 21 no.8:46-47 Ag '62.
(MIRA 18:9)

TEPLYAKOV, A., inzh.

Lapping machine for valves. Rech. transp. 24 no.11:27 '65.
(MIRA 19:1)

TEPLYAKOV, A.A.

Experience in modernizing machine-tool equipment. Rech.transp. 17
no.9:50-51 S'58. (MIRA 11:11)

1. Glavnyy mekhanik sluzhby sudovogo khozyaystva Moskovskogo
parakhodstva.

(Machine tools)

DAVIDOV, V.I.; TEPLYAKOV, B.V.; ROMANOV, G.K.

Preparation of high-purity tellurium. TSvet. met. 34 no.11:
52-54 N '61. (MIRA 14:11)

(Tellurium—Metallurgy)

DAVIDOV, V.I.; TEPLYAKOV, B.V.; ROMANOV, G.K.

Reduction of germanium dioxide by carbon and carbon monoxide.
Zhur.prikl.khim. 35 no.7:1625-1629 J1 '62. (MIRA 15:8)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Germanium oxide) (Carbon) (Carbon monoxide)

TEPLYAKOV, B.Ya.

Correlation between total morbidity and morbidity accompanied by
temporary disability. Zdrav.Ros. Feder. 2 no.8:21-24 Ag '58
(MIRA 11:9)

1. Iz kafedry organizatsii zdravookhraneniya (zav. - prof.
N.A. Vinogradov) Tsentral'nogo instituta usovershenstvovaniya
vrachey (dir. V.P. Lebedeva).
(INDUSTRIAL MEDICINE)
(MEDICAL STATISTICS)

TEPLYAKOV, B.Ya.

Role of industrial factors in disease incidence with temporary disability among industrial workers. Zdrav. Ros. Feder. 5 no.5: 20-22 My '61. (MIRA 14:5)

1. Iz kafedra organizatsii zdavookhraneniya (zav. - prof. N.A. Vinogradov) Tsentral'nogo instituta usovershenstvovaniya vrachey (dir. M.D. Kovrigina).
(MOSCOW—RUBBER INDUSTRY—HYGIENIC ASPECTS)
(DISABILITY EVALUATION)

TEPLYAKOV, D. I., Cand Tech Sci -- (diss) "^{Study}Investigation of the
Radiation-Field Structure in Heliotechnical Installations with
Reflecting Concentrators." Mos (Pub House ^{of the} Acad Sci USSR),
1957. 17 pp with drawing^s. (Acad Sci USSR, Power ^{Engineering} Inst im G. M.
Krzhizhanovskiy), 125 copies. (KL 7-58, 111)

TEPLYAKOV, D.I.

Investigating the radiation field structure in solar energy
utilization units having reflecting concentrators. Inzh.-fiz.zhur.
no.4:31-39 Ap '58. (MIRA 11:7)

1. Energeticheskiy institut AN SSSR, g. Moskva.
(Solar energy)

PLANS 1 BOOK EVALUATION 307/1612

Academy nauk SSSR. Energeticheskii Institut
Teploenergetika, vyp. 21. Ispol'sneniye solnechnoy energii (Heat Power
Engineering, No. 21. Use of Solar Energy) Moscow, 1962. 195 p. Errata
slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Energeticheskii Institut (Inst
G.M. Krivonozhko.

Resp. Ed.: V.A. Baun, Doctor of Technical Sciences, Professor; Ed. of
Publishing House: G.B. Gorshkov; Tech. Ed.: I.M. Sorokina.

PURPOSE: The publication is intended for power engineers and economists
interested in the industrial utilization of solar energy.

COMMENTS: This collection of 19 articles is a continuation of an earlier
work published under the same title in 1957. The articles present results
of investigations conducted in the USSR during the last three years at
the Laboratory on the Use of Solar Energy and Wind in the Energeticheskii
Institut Akademiya Nauk (Energy Institute of the USSR Academy of Sciences).
In addition, the results of investigations of solar energy, depending upon
the amount of solar energy received, are analyzed. 26 personalities
are mentioned. References follow each article.

1. Shchegolev, D.M. and Ivan, G.M. Research and Development of the
Process of Treating Aluminum of Solar Thermal Power Stations 62
2. Barf, B.A. Approximate Method for Determining the Efficiency of the
Conversion of a Solar Power Station 65
3. Remizov, E.D. Some Problems in the Economics of Solar Power
Engineering 69
4. Remizov, E.D. and V.M. Malozemov. Investigation of Semiconductor
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5. Ignatov, R.R. and D.I. Topolnikova. Optimal Geometry of Solar Semicon-
ductor Thermal Batteries 83
6. Remizov, A.S. Investigation of the Thermal Conductivity of Tellurides 89
7. Shchegolev, D.M. Estimation of the Size of Thermal Storage Battery
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9. Palmetia. Effect of the Selective Characteristics of Absorbing
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Hydrogen from Water by Electrolysis 149
12. Shchegolev, D.M. Determining the Optimal Angle of Inclination in Solar
Stations with Tube-Type or Flat Boilers 155
13. Palmetia. Methods for Determining the Efficiency of Economic
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16. Shchegolev, D.M.
2/6/61

TEPLYAKOV, D.I.

33938

S/665/61/000/003/002/018

E032/E314

26.1512

AUTHORS: Tepliyakov, D.I. and Annayev, A.

TITLE: Study of the optimum receiver geometry for accurately-reflecting solar installations

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Teploenergetika. no. 3, 1961. Poluprovodnikovyye preobrazovateli solnechnoy energii, 21 - 30

TEXT: Studies carried out at the Energeticheskiy institut AN SSSR (Power-engineering Institute of the AS USSR) showed that the efficiency of transformation of radiant solar energy by semiconductor devices is reduced owing to the nonuniform energy distribution over the working surface of the energy converter. It has therefore become necessary to equalize the energy flux over the surface of the receiver by suitably modifying the form of the concentrator. In previous papers by the first of the present authors and R. Aparisi (Ref. 4: Teploenergetika, no.2, published by AS USSR, 1960) and the first of the present authors (Ref. 5: IFZh, 1958, no. 4) a differential equation was derived for the form of the receiving surface on which a parabolic mirror

Card (1/5)

3393P

S/665/61/000/003/002/018

E032/E314

Study of the optimum

gives a uniform energy distribution. In the present paper, the authors report a numerical integration of this differential equation, which was carried out with the aid of a mechanical integrator at the above institute. The integration was carried out by L.I. Korneyev and A.F. Koleganov under the direction of V.I. Gorushkin; the solutions were obtained for a wide range of values of the parameter

$$\epsilon = \frac{E_0 R_3}{E^x} \quad (3) \quad \checkmark$$

where R_3 is the reflecting coefficient,

E^x is the energy density at the surface of the required receiver, and

E_0 is the energy density of solar radiation on an area perpendicular to the direction of incidence ($\epsilon = 0.01 - 1.0$).

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33936

S/665/61/000/003/002/018

E032/E314

Study of the optimum

Comparison of the numerical results with analytical expressions shows that the form of the receiver surface in polar coordinates is:

$$\rho = \frac{f_o \sqrt{\epsilon}}{\sqrt{\cos^3 \frac{U}{2}}} \quad (6) .$$

This expression applies to the case of a parabolic reflector (ρ - radius of curvature, f_o - focal length, U - angle between the radius vector and the direction of the optical axis). For values of U up to 60° , the difference between the analytical and numerical calculations is less than 0.48%. For a reflecting parabolic cylinder the formula for the receiver surface is

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$$\rho = \frac{f_0 \epsilon}{U \cos \frac{\pi}{2}} \quad (7)$$

where up to $U = 60^\circ$ the above discrepancy is $< 0.69\%$. These numerical and analytical calculations were checked experimentally in September-October, 1960, at the solar base of the Fiziko-tekhnicheskii institut AN TSSR (Physicotechnical Institute of the AS TSSR (Ashkhabad)). The apparatus was very similar to that described in detail by R. Aparisi in Ref. 3 (Experimental installation for the production of high temperatures, Solar-energy utilisation, AS USSR, 1957). A disadvantage of the Ashkhabad installation is said to be that it does not incorporate automatic tracking and must be adjusted manually. It was shown that it was possible to obtain a uniform energy distribution by making the receiver surface conform to the special shape required by the above calculations. The

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solution obtained for uniform-distribution receivers and idealized concentrators was found to be applicable to glass projector mirrors with the receiver placed at a distance of 3 or 4 focal-image diameters from the geometrical focus. There are 5 figures, 2 tables and 6 Soviet-bloc references.

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